CLAIMS

1. A structural ply of a paperboard core, the machine direction (MD) elasticity modulus E of said structural ply being at least 7000 Mpa, **characterized** in that the structural ply is manufactured with a press drying method and that the cross machine direction (CD) elasticity modulus E of the structural ply is higher than 4500 Mpa.

2. A structural ply as recited in claim 1, **characterized** in that the cross machine direction (CD) elasticity modulus E of the structural ply is higher than 4800 MPa and preferably higher than 5000 MPa.

3. A structural ply as recited in claim 1, **characterized** in that the cross machine direction (CD) elasticity modulus E of the structural ply is higher than 5500 MPa, preferably higher than 6000 MPa, and more preferably over 6500 MPa.

4. A structural ply as recited in any of the preceding claims 1 to 3, **characterized** in that the machine direction (MD) elasticity modulus E of the structural ply is further substantially higher than 8000 MPa.

5. A structural ply as recited in any of the claims 1 to 4, **characterized** in that the structural ply is manufactured with a Condebelt process, which is a press drying method.

6. A paperboard core comprising a structural ply as recited in any of the preceding claims, the elasticity modulus E of the paperboard core being at least 5000 MPa, preferably over 5500 MPa, more preferably over 6000 MPa.

7. A spirally wound paperboard core, **characterized** in

that the paperboard core comprises structural plies, the cross machine direction (CD) elasticity modulus of at least one of which structural plies is over 4500 MPa, preferably over 5000 MPa, and the machine direction (MD) elasticity modulus at least 7500 MPa, preferably over 8000 MPa.

8. A spirally wound paperboard core as recited in claim 7, **characterized** in that the paperboard core comprises structural plies, the total thickness of the structural plies being preferably at least 1/5 of the core wall thickness and the cross machine direction (CD) elasticity modulus of the structural plies being at least 4500 MPa, preferably over 5000 MPa, and the machine direction (MD) elasticity modulus of the structural plies being at least 7800 MPa, preferably over 8000 MPa.

9. A method of improving the stiffness of a spirally wound paperboard core, **characterized** in that the paperboard core is made up of structural plies, the cross machine direction (CD) elasticity modulus of at least one of which structural plies is at least 4500 MPa, preferably over 5000 MPa, and the machine direction (MD) elasticity modulus at least 7800 MPa, preferably over 8000 MPa.

10. A method as recited in claim 9, of improving the stiffness of a spirally wound paperboard core, **characterized** in that the paperboard core is made up of structural plies the total thickness of the structural plies being preferably at least 1/5 of the core wall thickness and the cross machine direction (CD) elasticity modulus of the structural plies being at leat 4500 MPa, preferably over 5000 MPa, and the machine direction (MD) elasticity modulus at least 7800 MPa, preferably over 8000 MPa.

11. A paperboard core as recited in any of the preceding claims 6 to 8, **characterized** in that the paperboard core

is made up of structural plies, the machine direction elasticity modulus of the structural plies being at least 9000 MPa.

12. Use of a paperboard core as recited in any of the claims 6 to 8 as a yarn carrier.

13. Use of a paperboard core as recited in claim 11 as a yarn carrier.

14. Use of a paperboard core as recited in any of the claims 6 to 8 as a tube for thin films and foils.

15. Use of a paperboard core as recited in claim 11 as a tube for thin films and foils.

16. Use of a paperboard core as recited in claims 6 to 8 or in claim 11 as a thick-walled paper industry core, the wall thickness H thereof being at least 10 mm and the inside diameter over 70 mm, such cores being used with unwinding/winding speeds of at least about 200 m/min (= 3.3 m/s).

17. A core as recited in claims 6 to 8 or in claim 11, **characterized** in that the paperboard core is a thick-walled paper industry core, the wall thickness H thereof being at least 10 mm and the inside diameter over 70 mm, such cores being used with unwinding/winding speeds of at least about 200 m/min (= 3.3 m/s), the width of the paperboard ply located in the middle the core being

- with cores having the inside diameter of 73 mm to 110 mm,
at least 185 mm, preferably over 210 mm, and more preferably over 230 mm,
- with cores having the inside diameter of 111 mm to 144 mm,
at least 205 mm, preferably over 210 mm, and more prefer-

ably over 230 mm,
- with cores having the inside diameter of 145 mm to 180 mm,
at least 210 mm, preferably over 250 mm, and more preferably 350 mm to 450 mm,
- and with cores having the inside diameter of 181 mm to 310 mm,
at least 220 mm, preferably over 250 mm, and more preferably 350 to 500 mm, but

at most the maximum ply width L_{max} of each core of a certain width, where L_{max} = (π) x (core diameter in the specific point).